

REMARKS

This paper is responsive to the Office Action mailed from the Patent and Trademark Office on November 16, 2006, which has a shortened statutory period set to expire February 16, 2007.

Claims 8-45 are pending in the above-identified application. Claims 16-19 are withdrawn.

Claim 44 is objected to, Claim 15 is rejected under 35 USC 112, Claims 8-15 and 20-45 are rejected under one or more of statutory and obviousness-type double-patenting, and Claims 12, 15 and 20, 21, 24, 25, 26, 28, 30, 31, 33, 38, 39, 40, and 42-45 are rejected under 35 USC 103(a).

In the current paper, Claims 15 and 44 are amended for clarity. No new matter is entered. In view of these amendments and the following remarks, Applicants respectfully request reconsideration and withdrawal of all pending rejections.

Objection to Claim 44

Claim 15 is objected to in paragraph 3 of the Office Action for including erroneous punctuation. Claim 44 is amended herein to replace the ",", with --.--. No new matter is entered. Reconsideration and withdrawal of the objection is respectfully requested.

Rejection Under 35 USC 112

Claim 15 is rejected under 35 USC 112, second paragraph, in paragraph 5 of the Office Action. In response, Claim 15 is amended to replace "range of frequencies" with --the output from the local oscillator--. Support for this amendment is provided in paragraphs 0008 and 0046-0047. No new matter is entered. In view of this

amendment, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 USC 112.

Rejections Based on Double Patenting

1) Double Patenting Rejections over USP 6,167,246

Claims 8-15 are rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-3, 5 and 7-10 of US Patent No. 6,167,246 (see paragraph 7 of the Office Action).

Applicants submit herewith a Terminal Disclaimer to overcome this rejection. Applicants are not admitting by the terminal disclaimer that any claims of the pending application are obvious over any claims of US Patent No. 6,167,246. The terminal disclaimer is being filed solely to expedite issuance of a patent.

2) Double Patenting Rejections over USP 6,324,390

Claims 20-33 and 38-45 are rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-5 and 12-14 of US Patent No. 6,324,390 (see paragraph 8 of the Office Action).

Applicants submit herewith a Terminal Disclaimer to overcome this rejection. Applicants are not admitting by the terminal disclaimer that any claims of the pending application are obvious over any claims of US Patent No. 6,324,390. The terminal disclaimer is being filed solely to expedite issuance of a patent.

3) Double Patenting Rejections over USP 6,324,390 in view of USP 6,167,246

Claims 34-37 are rejected on the grounds of nonstatutory obviousness-type double patenting as being

unpatentable over Claim 1 US Patent No. 6,324,390 in view of Claims 1-10 of US Patent No. 6,167,246 (see paragraph 9 of the Office Action).

Applicants believe the double patenting rejection directed to these claims is overcome by the Terminal Disclaimer mentioned above.

4) Double Patenting Rejections over USP 6,662,003

Claims 12-15 and 20-45 are rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over Claim 1 US Patent No. 6,662,003.

Applicants submit herewith a Terminal Disclaimer to overcome this rejection. Applicants are not admitting by the terminal disclaimer that any claims of the pending application are obvious over any claims of US Patent No. 6,662,003. The terminal disclaimer is being filed solely to expedite issuance of a patent.

For the above reasons, Applicant requests reconsideration and withdrawal of all double patenting rejections.

Rejections Under 35 USC 103

Claims 12, 15, 21, 24, 25, 26, 28, 30, 31, 33, 38, 39, 40, and 42-45 are rejected under 35 USC 103(a) as being unpatentable over USP 5,930,695 (Yamaguchi) in view of USP 5,020,147 (Okanobu).

Applicants object to the rejection in that Claims 12, 15, 20, 21, 24, 25, 26, 28, 30, 31, 33, 38, 39, 40, and 42-45 are considered "not patentably distinct from...Claims 1-20 of U.S. Patent No. 6,662,003" (see paragraph 10 of the

Office Action). The Examiner has already found Claims 1-20 of U.S. Patent No. 6,662,003 patentable over Yamaguchi and Okanobu. Applicants respectfully submit that if, as the Examiner argues, Claims 12, 15, 20, 21, 24, 25, 26, 28, 30, 31, 33, 38, 39, 40, and 42-45 are "not patentably distinct from..Claims 1-20 of U.S. Patent No. 6,662,003", then Claims 12, 15, 20, 21, 24, 25, 26, 28, 30, 31, 33, 38, 39, 40, and 42-45 are distinguished over Yamaguchi and Okanobu for at least the reasons set forth in the file history associated with U.S. Patent No. 6,662,003. Therefore, Applicants respectfully request that either the rejection of Claims 12, 15, 20, 21, 24, 25, 26, 28, 30, 31, 33, 38, 39, 40, and 42-45 over Yamaguchi and Okanobu be withdrawn, or the double patenting rejection of these claims over U.S. Patent No. 6,662,003 be withdrawn.

Further, Claim 20 is allowable over Yamaguchi and Okanobu at least because Claim 20 recites (in part) "filtering an input radio frequency (RF) signal using an intermediate frequency (IF) filter circuit in an all-CMOS superheterodyne receiver in the monolithic IC to generate an IF filtered output".

In particular, Yamaguchi et al. disclose a "single superheterodyne receiver constituting a digital radio receiver." (Col. 4, lines 5-6). In the receiver, a "signal received by an antenna 1 are amplified by a low-noise amplifier 2." (Col. 4, lines 6-7). In the receiver, "undesired components [of the received signal] are removed by a bandpass filter 3, the resultant signal is applied to a mixer 7 through an amplifier 6 having the amplitude-limiting function, converted into an intermediate frequency by being multiplied with a local-oscillation signal 22."

(Col. 4, lines 7-12). Intermediate frequency amplifier 6 comprises a "differential circuit having an NPN transistor." (Col. 5, lines 60-61). Mixer 7 comprises three transistors where the "emitters of the transistors Q5 and Q6 are connected to the collector of the transistor Q7." (Col. 7, lines 34-35). Accordingly, each of the transistors that Yamaguchi et al. use for intermediate frequency amplifier 6 and mixer 7 of the superheterodyne receiver are bipolar transistors. (Figs. 11, 13, and 15).

Moreover, Okanobu discloses that "filters may be fabricated on the same integrated circuit chip as mixers 32, 33, phase shifters 34, 35, combining circuit 36, oscillators 16, 26, etc." (Col. 7, 26-28). However, Okanobu does not disclose any particular process or material including a high frequency receiver (including a high frequency amplifier 12 and mixer stage 3) and intermediate frequency section 6. "Bipolar transistors are used in connection with integrated resistors and external inductances and capacitances to design circuits which process high frequencies." (Col. 4, lines 35-37). While, "transistors in CMOS technology are foreseen to realize the areas of the circuit which operate in a middle or low frequency range." (Col. 4, lines 38-40).

Therefore, Yamaguchi et al. and Okanobu fail to teach or suggest "filtering an input radio frequency (RF) signal using an intermediate frequency (IF) filter circuit in an all-CMOS superheterodyne receiver in the monolithic IC to generate an IF filtered output", as recited in Claim 20. Accordingly, Claim 20 is allowable over these references.

Claims 21, 24, 25, 26, 28, 30 and 31 are dependent from Claim 20, and are therefore allowable over Yamaguchi

et al. and Okanobu for at least the reasons set forth above.

Similar to Claim 20, Claim 33 recites "generating a local oscillator signal using an all-CMOS local oscillator in the monolithic IC", "mixing the local oscillator signal with the RF signal using an all-CMOS mixer in the monolithic IC to generate a frequency translated signal" and "filtering the frequency translated signal using an all-CMOS filtering circuit in the monolithic IC to generate a filtered output". As such, Claim 33 is believed to be distinguished over Yamaguchi and Okanobu for reasons similar to those provided above with reference to Claim 20.

Claims 38, 39, 40, and 42-45 are dependent from Claim 33, and are therefore allowable over Yamaguchi et al. and Okanobu for at least the reasons set forth above.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 USC 103.

CONCLUSION

For the above reasons, Applicants believe Claims 8-15 and 20-45 are in condition for allowance. Should the Examiner have any questions regarding the present paper, the Examiner is invited to contact the undersigned attorney at the number provided below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Patrick T. Bever". The signature is stylized with a large, looped "P" and a trailing flourish.

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